Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:	**FOS Report for week 41, year 2019**
Date:	from 07 OCT 2019 to 14 OCT 2019
Issue:	**1.0**

1 General Comments

Activities scheduled for this week are those planned for the 41st calendar week of 2019:

```
07 OCT 2019 to 14 OCT 2019 (DOYs 280 to 287).
```

The following routine activities were planned this week (see Gantt chart on next page and CRF 835).

- One Warm NIR Calibration on 09 OCT 2019 (DOY 282) with ETO 16:03:18z (orbit 52212; ASCENDING: thermally STABLE) and with the following expected calibration values:

  ```
  B.T.            =       3.91°
  R.M.S.          =       0.62
  Sun elevation   =       9.98°
  Moon elevation  =     -32.84°
  R.A.            =     112.09°
  DEC.            =     -27.54°
  ```

- Two LONG Calibrations on 10 OCT 2019 (DOY 283), which encompassed two ascending semi-orbital periods starting at 13:01:00z (orbit 52225) and 14:52:00z (orbit 52226).
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

None.

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Reported by:
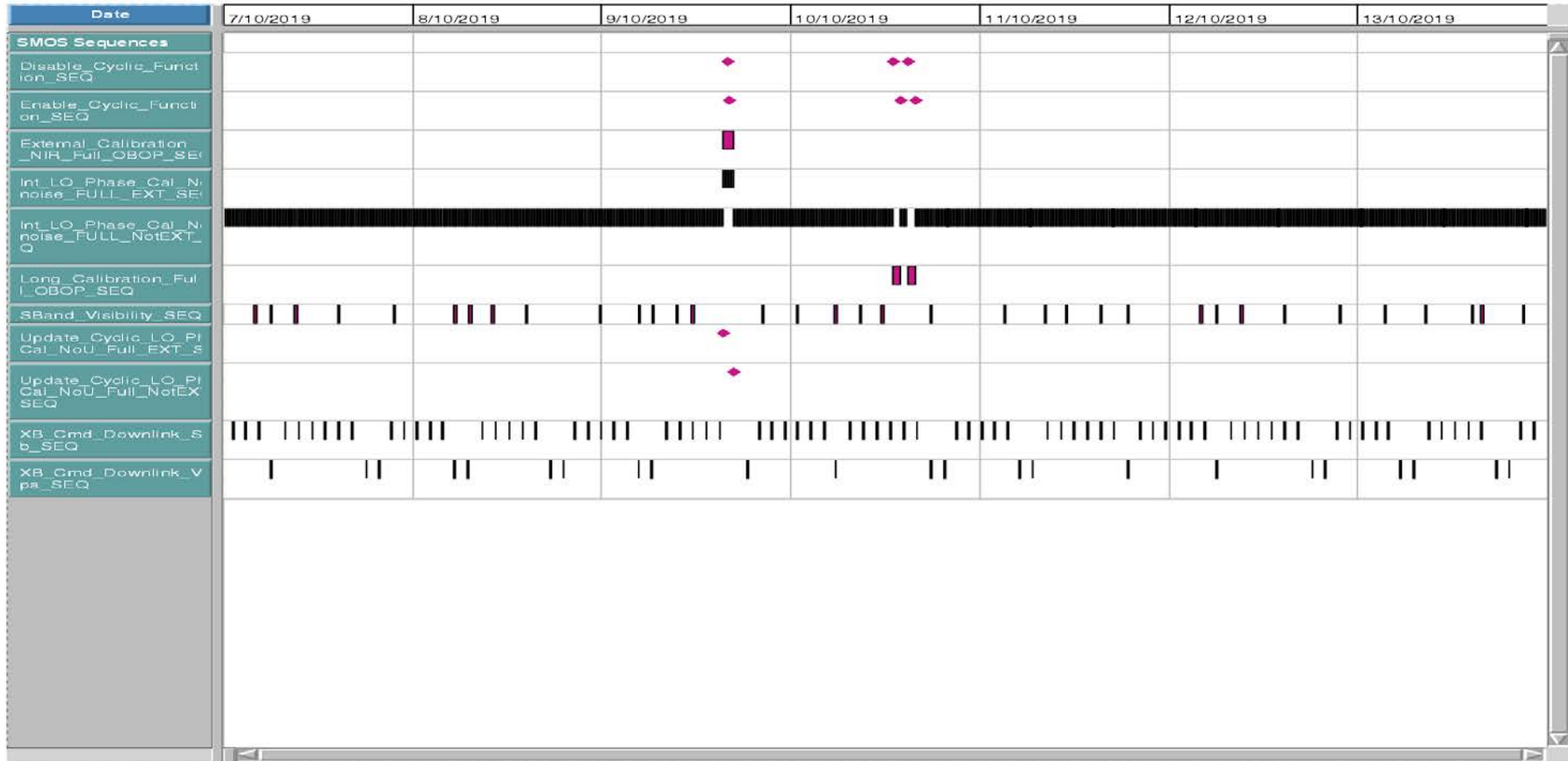
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SMOS

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3 TC Failures

None.

4 On Board Anomalies

- MIRAS Mass Memory partition P1, latched up 2019-10-10T23:32:55.467z (DOY 283). The following parameters went out of limits in the PLPC system:

      2019.283.23.32.55.467z   DMASME11   LU Switch P1
      2019.283.23.32.55.467z   DMASME37   SDD LU Detected

  This anomaly was geolocated over Antarctica:
      Latitude = -69.19º
      Longitude   = 120.00º

  There were no science data losses associated with this anomaly because it affected partition P1, while the Read and Write pointers were both on partition P4.

  Recovery took place 11 OCT 2019, at 12:30:00z (CRF 841).

  At the time of the anomaly the position of the MM pointers were as follows:

      READ   = 2035651 (partition P4)
      WRITE   = 2187729 (partition P4)

- The MIRAS CMN, unit B2, unlocked 2019-10-09T09:22:22,745z (DOY 282). This anomaly was geolocated off the coast of the State of Rio Grande do Sul (Brazil; South Atlantic Anomaly):
      Latitude   = -30.04º
      Longitude   = 314.64º

  Both parameters, output power SPM18162 and locking status SPM18167, went out of limits in the FOS PLPC system. The anomaly recovered in 13 Epochs.

- Mass Memory partition P9, latched up 2019-10-09T06:44:26,232z (DOY 282). The following parameters went out of limits in the PLPC system:
      2019.282.06.44.26,232z   DMASME03   LU Switch P9
      2019.282.06.44.26,232z   DMASME37   SDD LU Detected

  This anomaly was geolocated over the Bering Sea:
      Latitude   = 57.41º

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$$Longitude \quad = 182.58\ °$$

There were no science data losses associated with this anomaly because it affected partition P9 (i.e. a spare partition), while the Read and Write pointers were both on partition P0. Recovery took place the following day, Thursday 10 OCT 2019, at 12:00:00z (CRF 840). At the time of the anomaly the position of the MM pointers were as follows:

$$READ \quad = \quad 78132 \quad (partition\ P0)$$
$$WRITE \quad = \quad 144855 \quad (partition\ P0)$$

5 On Board Events Telemetry

The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2019-10-11T21:05:07	2307128
RAM single Bit Error	730	WARN	2019-10-09T22:32:41	2328970

6 FOS Systems Status

Workstation FOSEXT-3 was found fully unresponsive various times in the period 07-08 OCT 2019. At each occurrence the single course of action left was a hard reboot. Further analysis by the ESAC IT team showed that the problem was due to a damage on the machine hard disk. On the 10th of October a new SSD disk was installed on the machine and the whole system reinstalled again from a previous back up.

7 Data Reception from CNES

All *S* band passes were correctly received from CNES and successfully processed by the FOS PLPC system.

8 *X* Band Data Reception in PXMF

None, all *S* band passes successfully received and processed.

9 Exceptional Activities

None.

10 AOB

None.

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APPENDIX A: OOLs

On the 10th of October the following temporary out of limits were issued by the FOS PLPC system at the time of the MM latch-up of partition P1.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-10-11T03:43:48	2019-10-10T23:32:55	DMASME37	SDD LU Detected	FALSE	TRUE
2019-10-11T03:43:48	2019-10-10T23:32:55	DMASME11	LU Switch P1	OFF	ON

The CMN Unlock of unit B2 generated the following two temporary out of limits on PLPC system

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-10-09T10:03:35	2019-10-09T09:22:22	SPM18162	B2 LO_Out_Power	NOT-OK	OK
2019-10-09T10:03:35	2019-10-09T09:22:29	SPM18167	B2 LO_Locking	UNLOCK	LOCK

On the 9th of October the following temporary out of limits were issued by the FOS PLPC system at the time of the MM latch-up of partition P9.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-10-09T09:55:55	2019-10-09T06:44:26	DMASME37	SDD LU Detected	FALSE	TRUE
2019-10-09T09:55:55	2019-10-09T06:44:26	DMASME03	LU Switch P9	OFF	ON